

FCC 47 CFR MPE REPORT

Arovast corporation

humidifier

Model Number: LEH-S601S-WUS

Additional Model: LEH-S601S-Followed by up to 4 characters

FCC ID: 2ARBY-LEHS601S

Applicant:	Arovast corporation
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Report Number:	ESTE-R2303077
Date of Test:	Feb. 18~Mar. 08, 2023
Date of Report:	Mar. 09, 2023

Maximum Permissible Exposure

1. Applicable Standards

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

1.1. Limits for Maximum Permissible Exposure (MPE)

(a) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-10000			5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-10000			1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: Pd (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

2. Conducted Power Result

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)
BLE 1M	2402	6.52	4.487
	2440	5.01	3.170
	2480	2.21	1.663
BLE 2M	2402	7.01	5.023
	2440	5.53	3.573
	2480	2.69	1.858
IEEE 802.11b	2412	18.04	63.680
	2437	17.84	60.814
	2462	15.37	34.435
IEEE 802.11g	2412	18.59	72.277
	2437	18.30	67.608
	2462	16.39	43.551
IEEE 802.11n HT20	2412	17.71	59.020
	2437	17.31	53.827
	2462	15.46	35.156
IEEE 802.11n HT40	2422	16.83	48.195
	2437	16.48	44.463
	2452	15.59	36.224

3. Calculated Result and Limit

Mode	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm ²)	Limited of Power Density (S) (mW /cm ²)	Test Result
				(dBi)	(Linear)			
2.4G Band								
BLE	7.01	7±1	8	3.37	2.173	0.0027	1	Complies
IEEE 802.11b	18.04	18±1	19	3.37	2.173	0.0343	1	Complies
IEEE 802.11g	18.59	18±1	19	3.37	2.173	0.0343	1	Complies
IEEE 802.11n HT20	17.71	17±1	18	3.37	2.173	0.0273	1	Complies
IEEE 802.11n HT40	16.83	16±1	17	3.37	2.173	0.0217	1	Complies

End of Test Report